ORIGINAL

**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, D.C. 20554**



| | | |
|---|---|---|
| In the Matter of | ) | |
| | ) | |
| Redesignation of the 17.7-19.7 GHz Frequency | ) | IB Docket No. 98-172 |
| Band, Blanket Licensing of Satellite | ) | RM-9005 |
| Earth Stations in the 17.7-20.2 GHz and | ) | RM-9118 |
| 27.5-30.0 GHz Frequency Bands, | ) | |
| and the Allocation of Additional Spectrum | ) | |
| in the 17.3-17.8 GHz and 24.75-25.25 GHz | ) | |
| Frequency Bands for Broadcast | ) | |
| Satellite-Service Use | ) | |

# COMMENTS OF PEGASUS DEVELOPMENT CORPORATION

**PEGASUS DEVELOPMENT CORPORATION**

Bruce D. Jacobs
Stephen J. Berman

Its Attorneys

Fisher Wayland Cooper Leader
& Zaragoza L.L.P.
2001 Pennsylvania Ave., N.W.
Suite 400
Washington, D.C. 20006
(202) 659-3494



November 19, 1998

**Summary**

For Fixed-Satellite Service ("FSS") in the Ka-band to develop into a viable, ubiquitous multimedia service, consumers must have access to affordable, easily-installed earth stations that can be operated anywhere. Pegasus urges the Commission to make certain changes to its proposed spectrum allocations and licensing rules for the FSS that will increase the viability and ubiquity of the service.

The deployment of ubiquitous GSO FSS earth stations is compatible with co-primary and primary/secondary allocations to GSO FSS designations, provided the shared allocations are also to satellite services (NGSO FSS or MSS/FL). Ubiquitous deployment of GSO FSS earth stations is not possible, however, in allocations shared on a co-primary or primary/secondary basis with terrestrial Fixed Service ("FS") operations. Specifically, in the Ka-band downlink direction, the Commission should increase the amount of FSS spectrum that can support ubiquitous deployment of end-user terminals by modifying the proposed co-primary sharing between FS and GSO FSS at 18.55-18.8 GHz. For GSO FSS, this allocation would be replaced with a new co-primary allocation to GSO FSS in the 19.45-19.7 GHz band. This modification would benefit terrestrial FS, which would gain an exclusive primary allocation of 250 MHZ that would allow the entry of new FS systems into that sub-band and permit the further buildout of existing FS systems.

While Pegasus believes that the Commission should protect existing investments in terrestrial FS systems, the Commission should require grandfathered FS systems operating in bands now allocated to FSS to relocate to new frequency bands within ten years of a final order in this proceeding, so that at least eventually FSS systems will be able to use the band for widespread deployment of terminals.

Pegasus supports the Commission's proposal to adopt blanket licensing procedures for GSO FSS earth stations, as this policy will permit the ubiquitous low-cost deployment of earth stations. The Commission should apply its existing public notice procedures to Ka-band blanket license applications. However, given the technical variations in the licensed and proposed GSO FSS space systems, it will be crucial to operators' coordination efforts that they have an opportunity to review and comment on an applicant's proposed technical parameters, particularly those pertaining to adjacent satellites. Pegasus opposes the Commission's proposed reporting and record-keeping requirements for blanket licensed terminals. These requirements are contrary to a truly ubiquitous, low-cost service, would be overly burdensome, and would provide operators' competitors with marketing intelligence.

The Commission proposes a variety of technical standards to facilitate blanket licensing and GSO FSS intra-service sharing, and Pegasus addresses these standards in its comments. In particular, Pegasus believes that intra-service coordination would be facilitated by a more stringent off-axis EIRP standard than the Commission proposes, but that the Commission's proposed PFD limits for GSO FSS systems is more restrictive than necessary to protect GSO operators from interference from nearby and adjacent satellite systems. In Pegasus's view, compliance with these various technical standards is less important to avoidance of interference than full disclosure of technical characteristics and consultations between nearby and adjacent satellite operators via the blanket licensing process.

Pegasus supports the NPRM's proposed allocation for Broadcast Satellite Service ("BSS") at 17.3-17.8/24.75-25.25 GHz. The public would benefit from the added competition of a new generation of BSS operators. Pegasus urges the Commission, if at all possible, to move up the effective date for this new allocation from 2007 to 2004. The Commission is urged to consult with NTIA and others to determine if special coordination procedures or characteristics might expedite the implementation of BSS in this band.

**Table of Contents**

**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, D.C. 20554**

| | | |
|---|---|---|
| In the Matter of | ) | |
| | ) | |
| Redesignation of the 17.7-19.7 GHz Frequency | ) | IB Docket No. 98-172 |
| Band, Blanket Licensing of Satellite | ) | RM-9005 |
| Earth Stations in the 17.7-20.2 GHz and | ) | RM-9118 |
| 27.5-30.0 GHz Frequency Bands, | ) | |
| and the Allocation of Additional Spectrum | ) | |
| in the 17.3-17.8 GHz and 24.75-25.25 GHz | ) | |
| Frequency Bands for Broadcast | ) | |
| Satellite-Service Use | ) | |

## COMMENTS OF PEGASUS DEVELOPMENT CORPORATION

Pegasus Development Corporation ("Pegasus") hereby comments on the Commission's Notice of Proposed Rulemaking ("NPRM") in the above-captioned rulemaking. Pegasus believes that for Ka-band Fixed-Satellite Service ("FSS") to develop into a viable multimedia consumer-oriented service, consumers must have access to affordable, easily installed equipment that can be located anywhere. To be successful, this service requires the capacity for true ubiquity. While the Commission's NPRM takes several important steps in this direction, Pegasus urges the Commission to take certain additional steps, particularly concerning the allocation of adequate spectrum that is not overly constrained by sharing requirements.

### Background

*Pegasus.* Pegasus has applied for authority to launch and operate a global Fixed- Satellite Service ("FSS") in the Ka-band.[1/] Through this system, Pegasus intends to provide a broad range of multimedia services, consisting primarily of wide-band, high-speed digital transmissions.

---

1/ On December 22, 1997, Pegasus filed an application with the Commission proposing to launch and operate the Pegasus I Satellite System ("Pegasus I") in the Ka-band Fixed-Satellite Service ("FSS") using Ka-band spectrum.

Pegasus' parent company, Pegasus Communications Corporation ("Pegasus Communications") is a growing communications company that has achieved success in a variety of media industries. Pegasus Communications owns and operates five broadcast television stations and programs four other stations under time brokerage agreements. Pegasus Communications is the largest independent provider of the Broadcast Satellite Service ("BSS") of DIRECTV®, one of the BSS licensees in the Ku-band, with the exclusive right to distribute DIRECTV® programming services to approximately 4 million rural U.S. television households; including the effect of pending acquisitions, Pegasus currently serves approximately 425,000 DBS subscribers in thirty-six separate states. In addition, Pegasus Communications provides cable service to subscribers in Puerto Rico. Pegasus Communications has assets approaching $850 million in value and enjoys annualized revenues of almost $200 million.

*The Commission's NPRM.* On September 18, the Commission released its NPRM in the above-captioned proceeding. In the NPRM, the Commission proposes a new band plan for the Ka-band downlink frequency band at 17.7-19.7 GHz, one that would reduce the amount of spectrum sharing between FSS and terrestrial Fixed Service ("FS") licensees.

In order to protect investments made by terrestrial FS operators in bands that the Commission now seeks to allocate to FSS on a primary or co-primary basis, the Commission proposes that terrestrial FS operations that either have been licensed or for which applications are pending should be grandfathered in perpetuity in these new primary FSS bands. NPRM at 40. Under this proposal, satellite operators would have to accept whatever interference they receive from these grandfathered operations, but, at the same time, these grandfathered terrestrial licensees would not be permitted to modify their operations in any manner that might increase interference to satellite operations. *Id.*

In the NPRM, the Commission proposes to implement a blanket licensing policy for Ka-band GSO FSS earth stations in sub-bands where GSO FSS enjoys an exclusive primary allocation.[2/] NPRM at para. 44. The Commission asks for comment on whether it should implement blanket licensing in this exclusive GSO FSS spectrum before resolving the other more complex sharing, coordination, and band redesignation issues. NPRM at para. 72.

To achieve blanket licensing in the GSO FSS environment, the Commission proposes various technical rules for the operation of Ka-band GSO FSS systems, including specific EIRP and PFD limits. NPRM at paras. 47-62.

Finally, with respect to the Broadcast Satellite Service ("BSS"), the Commission proposes the allocation of new BSS spectrum, both for downlinks (17.3-17.8 GHz) and feeder links (24.75-25.25 GHz), that would become effective on April 1, 2007. NPRM at paras. 72-74. Adoption of this proposal would make the U.S. allocation consistent with the international allocation. *Id.*

## Discussion

### I. The Commission Should Modify its Ka-band Allocation Plan to Make the Spectrum More Useful to All Service Providers

#### A. The Commission should increase the amount of spectrum that would support blanket licensing and ubiquitous service

Pegasus supports the Commission's proposal to reduce sharing between services by segmenting the 17.7-19.7 GHz downlink band. The Commission should adopt certain changes,

---

2/ Under the band plan proposed by the Commission, there would be GSO FSS blanket licensing in the downlink frequency bands 18.3-18.55 GHz and 19.7-20.2 GHz, and in the uplink frequency bands 28.35-28.6 GHz and 29.5-30.0 GHz.

however, that would reduce even further the amount of sharing between FS and GSO FSS and would benefit both services by promoting ubiquitous deployment of GSO FSS earth stations and terrestrial FS facilities.[3/] *See* Figure A. Specifically, in these downlink band plans -- Option 1 and Option 2 -- Pegasus makes the following proposed changes to the Commission's primary band segmentation proposal:

Option 1:

- At 18.3-18.55 GHz, where the Commission proposes GSO FSS as the primary service, Pegasus would eliminate the secondary allocation for FS.
- At 18.55-18.8 GHz, Pegasus would eliminate the co-primary allocation to GSO FSS, leaving FS as the exclusive primary allocation.
- At 18.8-19.3 GHz, where the Commission proposes NGSO FSS as primary and GSO FSS as secondary, Pegasus would eliminate the secondary allocation for FS.
- At 19.3-19.7 GHz, where the Commission proposes MSS/FL and FS as co-primary and GSO FSS as secondary, Pegasus would segment this band. 150 MHz (19.3-19.45 GHz) would be allocated to MSS/FL and FS on a co-primary basis, and 250 MHz (19.45-19.7 GHz) would be allocated to MSS/FL and GSO FSS on a co-primary basis.

Option 2:

- At 18.3-18.55 GHz, where the Commission proposes GSO FSS as the primary service, Pegasus would eliminate the primary allocation to GSO FSS, and create a new primary allocation for FS at 18.3-18.55 GHz. As a result, the entire 17.7-18.55 GHz band would be allocated to FS on a primary basis.

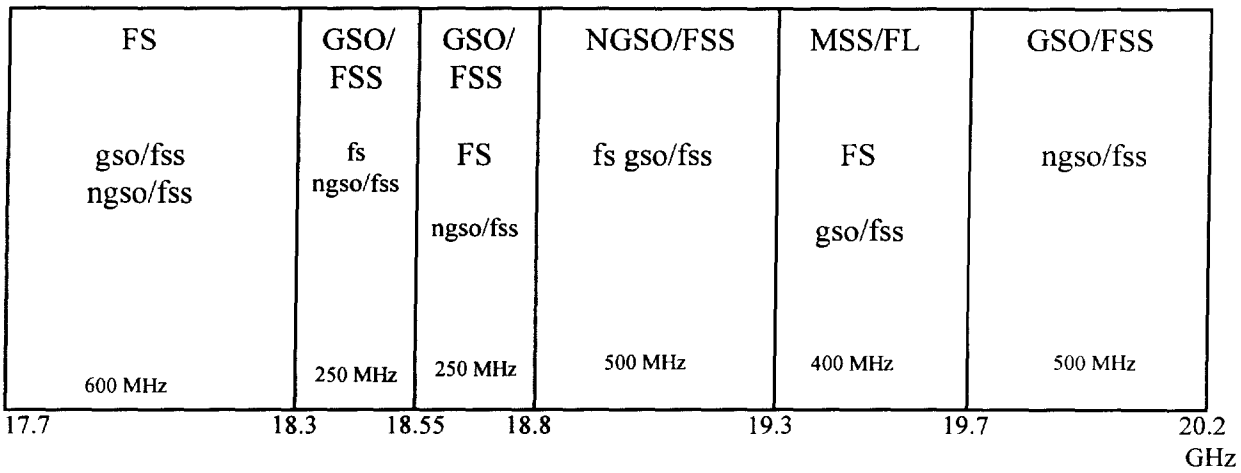
---

3/ As an applicant for orbital slots that will permit the provision of service to foreign customers, Pegasus urges the Commission to increase the ability of U.S. Ka-band licensees to provide international services. At WRC-2000 and in other international settings, the U.S. should advocate for allocations of sufficient bandwidth to GSO FSS in the Ka-band, including bands for gateway and trunking earth stations, and enact favorable service rules for Ka-band operators, such as blanket licensing procedures for end-user earth stations. The U.S. should promote its band segmentation plan to enable the mass production of end-user earth stations, the movement of satellites between U.S. and foreign orbital slots, and a better global service for all.

UPPER CASE = PRIMARY
Lower Case = secondary

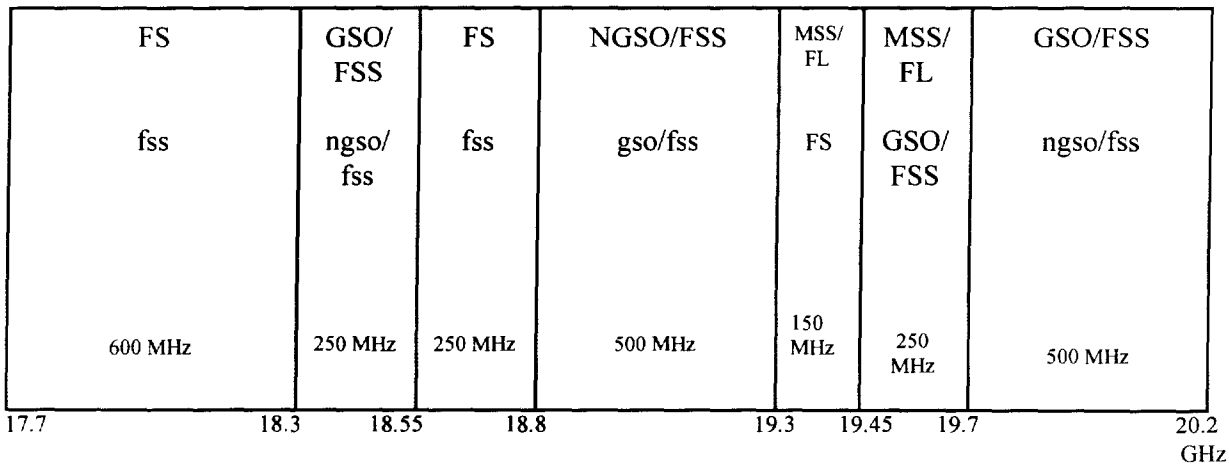


## FCC DOWNLINK BAND PROPOSAL




## PEGASUS' PROPOSALS FOR DOWNLINK BAND

### OPTION 1




### OPTION 2

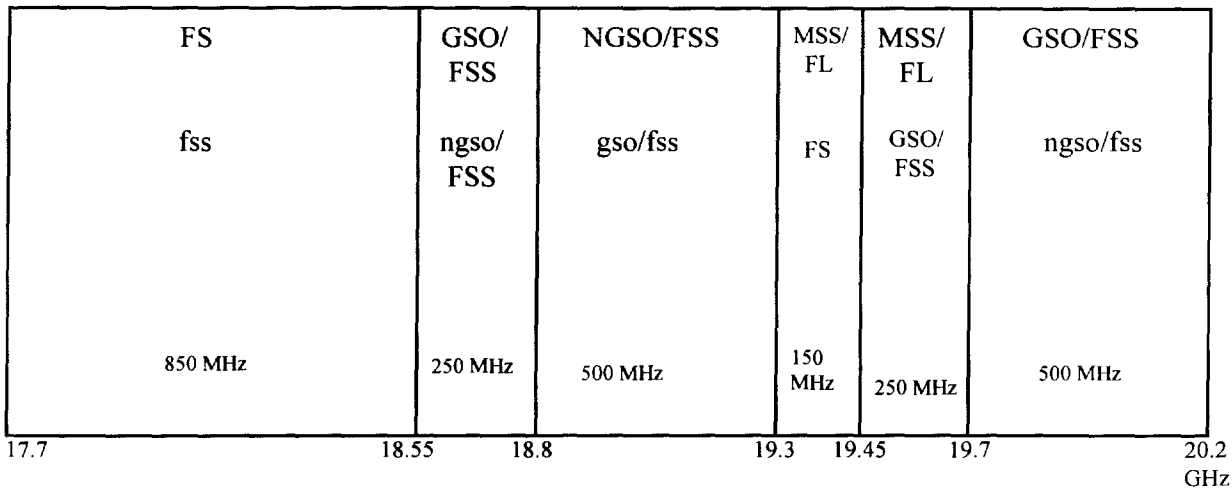



**FIGURE A**

- At 18.55-18.8 GHz, Pegasus would eliminate the co-primary allocation to FS, leaving GSO FSS as the exclusive primary allocation.
- At 18.8-19.3 GHz, same as Option 1.
- At 19.3-19.7 GHz, same as Option 1.

Thus, with these band proposals, Pegasus challenges the Commission's tentative conclusion that the co-primary allocation of the 18.55-18.8 GHz band to FS and GSO FSS would be an efficient use of this spectrum. Sharing between FS and GSO FSS will not permit blanket licensing or service ubiquity for either service.[4/] NPRM at para. 32. In addition, in spectrum allocated to these services on a primary/secondary basis, the secondary allocation would not support ubiquitous deployment, and such allocation would be of negligible value to either service. Ubiquitous service would also be impossible in spectrum where both GSO FSS and FS are secondary, operating on a co-equal basis. Thus, except for grandfathering, the Commission's segmentation plan should avoid allocations containing FSS and FS systems when the goal is capability for ubiquitous deployment of customer facilities.[5/]

Pegasus' proposed band plan replaces the Commission's 18.55-18.8 GHz co-primary allocation to GSO FSS and FS with a new co-primary allocation at 19.45-19.7 GHz of GSO FSS with Mobile Satellite Service Feeder Link ("MSS/FL"). Under Pegasus' proposal, there would be two types of GSO FSS operations in these bands. One type would involve a relatively small

---

4/ While sharing between terrestrial microwave facilities and commercial, heavy-route and thin-route earth stations in the C-band has generally been successful, these earth stations cannot necessarily be located on customer premises, and may be of limited commercial value in the Ka-band context of ubiquity. Moreover, the presence of these earth stations prevents the buildout of these terrestrial wireless facilities.

5/ Given the difficulty of sharing between GSO FSS and FS, the Commission should not adopt its alternative proposal for GSO FSS and FS to share the 17.7-18.8 GHz band (NPRM at para. 36) or the proposed co-primary allocation for FS and GSO FSS at 18.3-18.4 GHz. NPRM at para. 35.

number of large gateway earth stations. The other would be a larger number of small earth stations that, through the mitigation techniques of satellite and frequency diversity, could avoid interference with the operation of the MSS/FL users. To facilitate blanket licensing in this shared GSO FSS-MSS/FL spectrum -- and increase the amount of spectrum that can support the ubiquitous deployment of GSO FSS terminals -- providers in these services should further investigate and refine these mitigation techniques, and report their results to the Commission at the earliest practicable time.

By eliminating secondary allocations to FS in the 18.3-18.55 GHz and 18.8-19.3 GHz bands, Pegasus would create primary/secondary allocations to GSO FSS and NGSO FSS in these bands. (GSO FSS would be primary in the former sub-band and secondary in the latter.) GSO FSS users could provide a ubiquitous service in the NGSO FSS bands at 18.8-19.3/28.6-29.1 GHz using satellite or frequency diversity.[6/] Thus, under Pegasus' proposal, an additional 750 MHz would be available for ubiquitous GSO FSS operations in both the downlink and uplink bands.

Under Pegasus' proposals, terrestrial FS would also benefit by gaining a new exclusive primary 250 MHz primary allocation, either at 18.55-18.8 GHz or 18.3-18.55 GHz. This modification would increase the amount of truly useful spectrum in which FS operators could deploy new FS systems or build out existing systems.

### B. The Commission should limit grandfathering of terrestrial FS operations to existing facilities and only for ten years

Pegasus agrees with the Commission that existing investments in terrestrial FS operations should be protected. Pegasus believes, however, that the Commission should only grandfather

---

6/ To accomplish this, all operators sharing spectrum would have to cooperate by providing up-to-date constellation ephemeris data.

terrestrial FS licensees' existing facilities and only for a period of ten years following a final order in this proceeding. After this ten-year period, existing FS systems should be required to modify their facilities to operate at different frequencies, consistent with this proceeding. During this period, in order to facilitate coordination, grandfathered FS operators not yet operating their licensed systems should be required to notify any potentially affected GSO FSS systems when they begin operations.

Grandfathering FS facilities for ten years is an appropriate compromise between GSO FSS and FS interests. Much of the existing FS equipment will have to be replaced within ten years after installation in any case, due to obsolescence or physical deterioration, and a shift to alternative frequencies at that time should not add substantial expense to licensees' replacement facilities. In the interim, GSO FSS systems will be able to operate as long as they incur the expense and inconvenience of avoiding interference to these grandfathered facilities and protecting against interference to their own satellite systems.

## II. The Commission's Adoption of Blanket Licensing for Earth Stations is Critical to the Development of Ka-band FSS as a Consumer-oriented Service

Pegasus supports the Commission's proposal to adopt blanket licensing procedures for Ka-band GSO FSS earth stations, which may number in the hundreds of thousands or millions for some licensees. A blanket licensing policy is critical to the development of Ka-band FSS as a consumer-oriented, multimedia service -- this licensing framework (and appropriate allocations) will permit the ubiquitous deployment of earth stations throughout a satellite operator's coverage area, thus enabling the provision of services anytime, anywhere.[7/]

---

7/ The Commission asks whether it should implement blanket licensing in unshared GSO FSS spectrum before resolving issues pertaining to other services sub-bands. NPRM at para. 72. Pegasus believes that the Commission should move forward with a blanket

(continued...)

### A. The Commission should apply existing public notice procedures to Ka-band blanket license applications

Pegasus urges the Commission to apply its existing public notice procedures to blanket license applications from Ka-band GSO FSS operators. In order to promote intra-service sharing among FSS systems, potentially affected GSO FSS operators must have an opportunity to access these applications and examine an applicant's proposed technical parameters. Given the varying quantity and coverage of beams to be transmitted by the licensed and proposed Ka-band satellite systems, there may be uncertainty regarding the technical characteristics of adjacent and nearby satellite systems and the probability of interference to and from such systems.[8/] Public notice procedures are critical to operators' efforts to coordinate their systems and avoid interference.

### B. The Commission should not adopt its proposed reporting and record-keeping requirements for licensed earth stations

Pegasus opposes the Commission's proposal that GSO FSS licensees make available records on location of earth stations and frequencies used by their systems, and submit an annual report to the Commission indicating the number of earth stations brought into service that year. *See* NPRM at paras. 45-46. While the NPRM suggests that this information will permit secondary users to avoid causing interference to GSO FSS earth stations, Pegasus believes that such avoidance is not possible in a situation where the primary service is truly ubiquitous. As

---

7/ (...continued)
licensing policy for GSO FSS end-user terminals before settling these other issues. The Commission has already licensed numerous GSO FSS Ka-band systems and, according to Commission staff, will shortly accept for filing a new group of applications to provide this service. Expeditious action on GSO FSS blanket licensing will allow these licensees and applicants to proceed with the design and production of end-user terminals.

8/ The proposed and licensed Ka-band FSS systems vary from single beam coverage to the use of forty beams or more. One Ka-band applicant even proposes a 1000 beam satellite. Given this substantial variation in satellite antenna gain, the EIRP density of the earth stations for the various systems will vary by the same factor.

indicated above, the secondary FS designations should be removed; they simply are not practical. (Nor would this information facilitate co-primary or primary/secondary sharing between satellite services, except for the limited case of co-primary sharing between GSO FSS and MSS/FL.) In addition, given the large number of end-user earth stations likely to be installed by Ka-band GSO FSS operators, a requirement that these licensees monitor the precise number and location of operative terminals would be extraordinarily burdensome. Finally, the information requested by the Commission constitutes valuable marketing intelligence, and satellite system operators should not be required to disclose this information to their satellite and terrestrial competitors.

## III. Proposed Requirements for Intra-service Sharing between GSO FSS operators

In implementing 2° spacing for GSO FSS systems in the C- and Ku-bands, the Commission established technical rules in order that conforming satellite systems will not cause unacceptable interference to adjacent satellites under normal circumstances. These rules pertain to such technical parameters as antenna performance and uplink and downlink power flux densities ("PFD"). In the NPRM, the Commission proposes similar technical rules to enable blanket licensing and intra-service sharing in the Ka-band environment, and Pegasus addresses each of the proposed standards below.[9/] NPRM at paras. 47-62.

### A. Antenna performance rules -- off-axis EIRP density

In the NPRM, the Commission proposes an off-axis EIRP density standard for Ka-band GSO FSS systems, rather than a single standard for antenna sidelobe performance, which has

---

9/ In addition to coordination issues within the U.S, the Commission asks for comment on international coordination of Ka-band FSS earth stations with services operating on the same Ka-band frequencies in Canada and Mexico. NPRM at paras. 70-71. Pegasus supports the proposal for 16 km coordination zones extending from the Canadian and Mexican borders that would include a horizontal, maximum (line-of-sight) PFD for both FS and FSS systems.

been the approach in the C-band and Ku-band contexts. The Commission indicates that this new approach will afford operators more flexibility in system design while achieving the desired level of interference in the 2° spacing environment. The Commission describes a standard for off-axis EIRP density proposed by Motorola, which it concludes is overly stringent, and then presents its own proposed off-axis EIRP density threshold. NPRM at paras. 50-51.

Pegasus agrees with the Commission that Motorola's proposed standard should be rejected. Pegasus' proposed satellite system, with thirty uplink beams, barely meets the Motorola criteria (by 0.6 dB at 2.2 degrees), and it appears that the Motorola standard would not permit the operation of satellites having a small number of beams (in the range of five to ten beams). At the same time, Pegasus favors adoption of an off-axis EIRP standard that would be more protective of adjacent GSO FSS satellites than the Commission's proposal; considering the range of satellite antenna gain in the licensed and proposed Ka-band GSO FSS systems, which will vary between 1 to 40 satellite beams, Pegasus believes that a standard that limits off-axis EIRP density slightly more than in the Commission's proposal would facilitate coordination between these systems.

Pegasus wishes to emphasize here, however, that the development of an off-axis EIRP density threshold is less important to successful coordination between systems than blanket license applicants' full disclosure of their technical parameters in the blanket license applications. Operators' compliance with any particular standard will not guarantee the avoidance of interference with adjacent satellite systems; an interference-free environment can only be ensured through fully informed technical consultations with adjacent and nearby satellite operators.

### B. Uplink adaptive power control

Uplink adaptive power control ("UAPC") maintains a relatively constant PFD at the satellite, generally mitigating adjacent satellite interference and simplifying satellite design. Satellite operators have varying availability objectives, and some systems will be designed to overcome much more rain attenuation than others. Given this variation and the lack of operational experience in the Ka-band, Pegasus opposes the Commission's suggested establishment of a UAPC standard at this time. Specific UAPC rules, however, may become appropriate at some time in the future, after industry experience with this technology.[10/]

### C. PFD limits

Pegasus opposes the Commission's proposed PFD limits for the Ka-band service (-120 dBW/MHz averaged over 40 MHz and -118 dBW per MHz, averaged over 1 MHz). *See* NPRM at para. 59. This standard is more stringent than necessary to protect co-channel adjacent satellite operations from harmful interference, and could make it difficult for some operators to implement a viable service. In particular, application of this restrictive standard would be detrimental to Pegasus, whose proposed system requires PFDs ranging from -119.5 dBW/MHz in the southeast to -125 dBW/MHz elsewhere, for service to .7 m antennas and an estimated 99.5% availability. Pegasus' service to .5 m receive-only earth stations requires a PFD that is 2.9 dB higher. In addition, the Commission's proposal is more restrictive than the standards

---

10/ Applicants should include the following information regarding UAPC in their blanket license applications:

- Minimum value of attenuation before UAPC is triggered
- Maximum high power limit
- Expected accuracy of attenuation measurement
- Control loop response time and overshoot limits
- Uplink availability objectives

enforced by other administrations, and would create asymmetry in international coordination. Pegasus instead favors the retention of the Commission's existing PFD limits for GSO FSS operators, contained in RR 28 and Sec. 25.208 of the Commission's rules (-105 to -115 dBW/MHz, depending on the angle of arrival).[11/]

Pegasus emphasizes again, however, that compliance with Commission standards alone cannot guarantee an interference-free environment; that outcome can only be ensured through fully informed technical consultations with adjacent and nearby operators satellite operators. For U.S. satellite systems, this can be accomplished through the Commission's blanket licensing procedures.

**D. Antenna pointing requirements**

The Commission does not propose any antenna pointing requirements at this time, and only seeks comment on the type of pointing requirement for Ka-band GSO FSS earth stations needed to minimize interference. NPRM at para. 61. While Pegasus recognizes that antenna pointing is critical to minimizing adjacent satellite interference and is currently investigating antenna alignment methods with earth station manufacturers, Pegasus does not believe that a specific antenna pointing standard or requirement is possible at this time, due to the lack of industry experience. It is clear, however, that appropriate tools and test equipment and adequate training will be needed in order to achieve reasonable accuracy. The alignment method, alignment tools, test equipment, and technical training should all be included in earth station blanket license applications. In addition, the Commission should require that each subscriber's

---

11/ In order to protect EES (passive) and SR (passive) services in the 18.6-18.8 GHz band, the Commission currently imposes a PFD limit of 101 dBW/m² on FSS operations in that band, for all angles of arrival. Pegasus believes this limit is reasonable, and its proposed system will comply with this standard.

transmissions be identifiable by operator, so that improperly aligned antennas can be located and corrected through cooperation among the operators.

**E. Small and non-compliant end-user terminals**

Small antennas, less than 0.7 m in diameter, will likely be utilized by Ka-band GSO FSS operators. These antennas may not meet the above-referenced antenna performance criteria contained in Section 25.209 due to the broad beam-width. Pegasus believes that the Commission should apply its existing policies towards non-compliant earth stations in the Ka-band service; under this policy, a Ka-band licensee would be permitted to operate non-compliant earth stations as long as the licensee included the necessary technical information in its blanket license application and coordinated the use of these earth stations with all potentially affected satellite operators.[12/]

The NPRM also notes that beamwidths in excess of 1° can be anticipated from small diameter antennas operating in the Ka-band, and asks whether 1° is the appropriate off-axis angle at which it should impose its Section 25.209 antenna performance envelope. NPRM at para. 56. Pegasus believes that, with 2° spacing established for FSS in the United States, it is not necessary to begin imposing this performance standard at 1 degree. The threshold for this criteria should be 2°, since only the antenna characteristic at 2° or more is significant. In addition, for small diameter antennas, it is important that the Commission clarify that the Section 25.209 standard defines the maximum antenna gain over the range of interest (whether sidelobe or mainlobe).

---

12/ *See* NPRM at para. 60; 47 C.F.R. §25.134(b). Under the Commission's rules, blanket license applications for non-compliant terminals must include an engineering analysis using the Sharp, Adjacent Satellite Interference Analysis ("ASIA") program.

## IV. The Commission Should Make Its Proposed Allocation to BSS by 2004

As a BSS service provider to almost half a million households in the U.S., Pegasus Communications has a strong interest in the Commission's proposal for a new BSS allocation. Pegasus supports the proposed allocation at 17.3-17.8/24.75-25.25 GHz. There is a clear need for an expansion of BSS spectrum, and the public would clearly benefit from the added competition of a new generation of BSS operators.[13/]

In the NPRM, the Commission proposed to make this new domestic BSS allocation effective on April 1, 2007, in conformance with the ITU Region 2 allocation to this service. NPRM at para. 79. The Commission indicated that this spectrum could not be allocated to BSS earlier, because of the existing operational needs of U.S. government systems using this band. *Id.*

Despite this government use, Pegasus urges the Commission to do all it can to move up the effective date for this new allocation from 2007. Given the pace of change in the multimedia arena, an acceleration of the Commission's timetable could be crucial to the success of the BSS operators licensed in this band. The Commission should consult with NTIA and others to determine if special coordination procedures or characteristics would enable the expedited implementation of this BSS allocation.

While the Commission will address the BSS orbital spacing issue in an upcoming proceeding, it now appears likely that orbital spacings even smaller than 4.5° will be possible in the new BSS band. As indicated above, some satellite operators may combine Ka-band FSS and

---

13/ Pegasus believes that FSS and BSS will ultimately be integral and complementary multimedia services available to each subscriber. BSS systems are designed for point-to-multipoint distribution of video and other digital signals, including computer files and data. FSS systems primarily are designed for point-to-point services. These BSS and FSS services are obtainable via a single subscriber antenna.

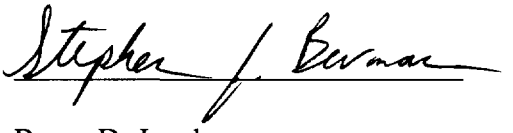
BSS to form one multimedia service, and subscribers to such a service may utilize single antenna, multibeam earth stations. With 2° spacing in the FSS, these antennas will likely be larger than existing BSS antennas, which should permit more narrow spacings in the new BSS allocation.

**Conclusion**

For the aforementioned reasons, Pegasus urges the Commission to adopt policies in this proceeding consistent with the comments provided herein.

Respectfully submitted,

**PEGASUS DEVELOPMENT CORP.**



Bruce D. Jacobs
Stephen J. Berman
Fisher Wayland Cooper
Leader & Zaragoza L.L.P.
Suite 400
2001 Pennsylvania Ave., N.W.
Washington, D.C. 20006
(202) 659-3494

November 19, 1998